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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,770	02/02/2001	Yuji Isoda	Q62998	6816

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EXAMINER

LEE, SHUN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/773,770

Applicant(s)

ISODA ET AL.

Examiner

Shun Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7 July 2003 has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Huston *et al.* (US 6,087,666).

In regard to claims **1**, **3**, **7**, and **9**, Sieber *et al.* disclose a method comprising applying (column 5, lines 1-25) a target radiation or ultraviolet rays (column 5, lines 37-39) to a means containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and is a composition of the formula (I):  $\text{BaGd}_2 : y\text{Tb}, z\text{Sm}$ , in which  $y$  and  $z$  are numbers satisfying the conditions of  $0 < y \leq 0.1$  and  $0 < z \leq 0.1$ , respectively (column 3, line 25 to column 4, line 18), to cause the phosphor to emit (column 6, lines 36-42) a light (e.g., green light at about 550 nm; Fig. 3). The method of Sieber *et al.* lacks measuring a light strength variation per unit time. Huston *et al.* teach (column 3, lines 1-7) that phosphors scintillate when exposed to ionizing radiation (e.g., x-rays or ultraviolet rays) which advantageously permit real-time monitoring of ionizing radiation. Inherent in real time monitoring is measurement as a function of time. Therefore it would have been obvious to one having ordinary skill in the art to measure the light strength variation per unit time in the method of Sieber *et al.*, in order to perform real-time monitoring of the ionizing radiation as taught by Huston *et al.*

In regard to claim **2** (which is dependent on claim 1) and claim **8** (which is dependent on claim 7), Sieber *et al.* also disclose (column 5, lines 1-5) that the means is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

In regard to claims **5** and **6**, Sieber *et al.* in view of Huston *et al.* is applied as in claims 1 and 3 above. Sieber *et al.* also disclose a method of producing a radiation image with a radiation image storage panel (comprising the phosphor) that comprises the steps of: determining (column 5, lines 25-30) the light strength in each pixel which is imaginarily set on the storage panel, to obtain two-dimensional image data; and producing (column 5, lines 30-36) a radiation image from the obtained image data.

5. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Huston *et al.* (US 6,087,666) as applied to claims 1 and 7 above, and further in view of Kastner *et al.* (US 3,412,248).

In regard to claim **4** (which is dependent on claim 1) and claim **10** (which is dependent on claim 7), Sieber *et al.* also disclose (column 1, lines 29-36; column 5, lines 37-39) that the radiation is ionizing radiation such as X-rays or Gamma rays or ultraviolet radiation. The modified method of Sieber *et al.* lacks the step of preparing a calibration curve by applying a standard target radiation (e.g., ultraviolet rays) in a known dose. Calibration is well known in the art. For example, Kastner *et al.* teach (column 3, lines 45-53) that calibration charts are made for exposure of the dosimeter to known amounts of radiation in order to give measurement of the radiation to which the dosimeter is exposed. Therefore it would have been obvious to one having ordinary skill in the art to apply a standard target radiation (e.g., ultraviolet rays) in a known dose in the modified method of Sieber *et al.*, in order to prepare a calibration curve so as to obtain measurements of the radiation to which the means (e.g., dosimeter) is exposed.

6. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Dewaele (US 5,832,055), Arakawa (US 5,051,589), and Brixner (US 4,608,190).

In regard to claims **11** and **13**, Sieber *et al.* disclose a method comprising the steps of:

- (a) applying (column 5, lines 1-25) a target radiation to a dosimeter containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):  $\text{BaGd}_2 : y\text{Tb}, z\text{Sm}$ , in which y and z are numbers satisfying the conditions of  $0 < y \leq 0.1$  and  $0 < z \leq 0.1$ , respectively (column 3, line 25 to column 4, line 18), so as excite the terbium-samarium co-activated phosphor (column 5, lines 1-36);
- (b) applying (column 5, lines 25-30) stimulating radiation (e.g., ultraviolet rays) to the dosimeter to which the target radiation has been applied, to cause the phosphor to emit a stimulated emission; and
- (c) measuring (column 5, lines 25-30) the stimulated emission.

The method of Sieber *et al.* lacks that excitation of terbium-samarium co-activated phosphor comprises variation of terbium and samarium atomic valency and a step of comparing the measured (*i.e.*, second) ultraviolet rays stimulated emission which is a second green light strength measurement and a second red light strength measurement to an initial (*i.e.*, first) ultraviolet rays stimulated emission obtained before target radiation application (*i.e.*, exposure). However, excitation of phosphors are well known in the art. For example, Brixner teach (column 4, lines 25-47) that excitation of a

phosphor comprises charge (e.g., an electron) trapping by activators. It should be noted that valency is defined<sup>1</sup> as "the combining capacity of an atom or a radical determined by the number of electrons that it will lose, add, or share when it reacts with other atoms or a positive or negative integer used to represent this capacity". Thus charges (e.g., an electron) trapped by an activator A changes the activator atomic valency (e.g.,  $A^{+3}$  to  $A^{+2}$ ). Further, Dewaele teach (column 6, lines 22-26) to determine a calibration matrix (which is required to correct for defects in a stimuable phosphor sheet; column 2, lines 5-36; column 3, lines 36-53) before every exposure for extreme accuracy. Arakawa teaches (column 3, line 62 to column 4, line 2) that a single stimuable phosphor sheet capable of emitting light having different wavelengths allow novel energy subtracting processes. Therefore it would have been obvious to one having ordinary skill in the art to compare the measured ultraviolet rays stimulated emission such as a second green light strength measurement and a second red light strength measurement (after target radiation excitation which varies the terbium and samarium atomic valency) to an initial ultraviolet rays stimulated emission (before target radiation excitation) such as a first green light strength measurement and a first red light strength measurement in the method of Sieber *et al.*, in order to perform energy subtraction at different wavelengths (*i.e.*, green and red wavelengths) and to correct for stimuable phosphor sheet defects using the initial ultraviolet rays stimulated emission.

In regard to claim 12 which is dependent on claim 11, Sieber *et al.* is applied as in claims 2 and 8 above.

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<sup>1</sup> The American Heritage® Dictionary of the English Language, Third Edition copyright © 1992 by Houghton Mifflin Company. Electronic version licensed from INSO Corporation; further reproduction and

In regard to claim **14**, Sieber *et al.* in view of Dewaele and Arakawa is applied as in claims 11 and 13 above. Sieber *et al.* also disclose a method of producing a radiation image from a radiation image storage panel (comprising the phosphor) that comprises the steps of: determining (column 5, lines 25-30) the emission in each pixel to obtain two-dimensional image data; and processing (column 5, lines 30-36) the two-dimensional image data for producing a radiation image from the obtained image data.

### ***Response to Arguments***

7. Applicant's arguments filed 7 July 2003 have been fully considered but they are not persuasive.

In response to applicant's argument ("II.A." and "II.B." on pg. 7-10 of remarks filed 7 July 2003) that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (*i.e.*, "radiation or UV light is applied to the phosphor continuously") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant argues that Figs. 3, 6, and 7 of the instant specification illustrates "when radiation or UV light is applied to the phosphor continuously, varies in its emission strength per unit time". Examiner respectfully disagrees. First it should be noted that continuously is defined<sup>1</sup> as "uninterrupted in time, sequence, substance, or extent" and dose is defined<sup>1</sup> as "the amount of radiation administered as therapy to a given site". There is nothing within Figs. 3, 6, and 7 that



describes continuous application of radiation or UV light since Figs. 3, 6, and 7 illustrates emission strength in some unspecified time (Fig. 3) and fluorescence strength variation (*i.e.*, change) per second as a function of the dose (*i.e.*, amount) of radiation (Fig. 6) or UV light (Fig. 7) applied. Thus "radiation or UV light is applied to the phosphor continuously" is not recited in the rejected claims and is also not described in the specification.

Further, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Moreover, it is noted that applicant cites Figs. 3 and 4 as illustrating the state of knowledge concerning emission strength as a function of time for co-activated (Fig. 3) and non-coactivated phosphors. However as discussed above, "radiation or UV light is applied to the phosphor continuously" is not described in the specification. In addition, it is important to recognize that the time in Figs. 3 and 4 is unspecified. Thus for example, it is indeterminate from Fig. 4 how long the emission strength is kept on the same level.

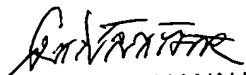
Applicant's arguments ("II.C." on pg. 10 of remarks filed 7 July 2003) with respect to claims 11-14 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
CONSTANTINE HANNAHER  
PRIMARY EXAMINER  
GROUP ART UNIT 2878

SL  
August 6, 2003